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PATENT

UNITED STATES PATENT AND TRADEMARK OFFICE
(Case No. 01-1008-A)

TC 2800 MAIL ROOM

In re Application of:

Malone et al.

Serial No.: 10/054,173

Filed: January 18, 2002

For: Method for Vacuum Deposition of
Circuitry Onto a Thermoplastic
Material and a Vehicular Lamp
Housing Incorporating The Same

Examiner: Not yet assigned

Group Art Unit: 2875

Confirmation No.: 4542

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

The subject application was inadvertently filed without Figures 12-15. Applicants herein amend the specification to be consistent with the foregoing omission.

Kindly delete the current section entitled "BRIEF DESCRIPTION OF THE DRAWINGS" and substitute the following --

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a prior art lamp assembly comprising a housing, a lens, and various light sources provided with a wire harness interconnecting the various light sources to an electrical system of a vehicle;

FIG. 2 is a prior art lamp assembly comprising a housing, a lens, and various light sources provided with a flex circuit interconnecting the various light sources to an electrical system of a vehicle;

FIG. 3 is a prior art lamp assembly comprising a housing, a lens, and various light sources provided with a metal circuit stamping interconnecting the various light sources to an electrical system of a vehicle;

FIG. 4 is a prior art lamp assembly comprising a housing, a lens, and various light sources provided with snap LEDs metal-framed assemblies interconnecting the various light sources to an electrical system of a vehicle;

FIG. 5 is a prior art lamp assembly comprising a housing, a lens, and various light sources provided with LED printed circuit board assemblies interconnecting the various light sources to an electrical system of a vehicle;

FIG. 6 is an exploded perspective view of a direct metallization of circuitry onto a plastic automotive lamp housing according to the invention;

FIG. 6A is an enlarged view of an LED being placed against the circuitry of FIG. 6;

FIG. 7 is a further embodiment of direct metallization of circuitry onto a plastic automotive lamp housing according to the invention;

FIG. 8 is a rear perspective view of a lamp housing having a complicated topography prior to application of a circuit directly thereto;

FIG. 9 depicts application of a mask to the lamp housing of FIG. 8 according to the invention;

FIG. 10 depicts metallization of the lamp housing of FIGS. 8-9 with mask applied; and

FIG. 11 depicts the lamp housing of FIGS. 8-10 with the circuitry applied and mask removed. --

At page 10, delete the first paragraph, lines 1-8, and substitute therefore the following --

A like process for the embodiment of Fig. 6 can be utilized on the front face thereof. --

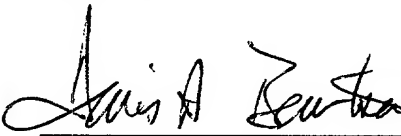
A copy of the foregoing section and paragraph, showing the proposed changes, is attached under Tab A.

Respectfully submitted,

McDonnell Boehnen Hulbert & Berghoff

Date: April 29, 2002

By:



Denis A. Berntsen
Reg. No. 26,707

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a prior art lamp assembly comprising a housing, a lens, and various light sources provided with a wire harness interconnecting the various light sources to an electrical system of a vehicle;

FIG. 2 is a prior art lamp assembly comprising a housing, a lens, and various light sources provided with a flex circuit interconnecting the various light sources to an electrical system of a vehicle;

FIG. 3 is a prior art lamp assembly comprising a housing, a lens, and various light sources provided with a metal circuit stamping interconnecting the various light sources to an electrical system of a vehicle;

FIG. 4 is a prior art lamp assembly comprising a housing, a lens, and various light sources provided with snap LEDs metal-framed assemblies interconnecting the various light sources to an electrical system of a vehicle;

FIG. 5 is a prior art lamp assembly comprising a housing, a lens, and various light sources provided with LED printed circuit board assemblies interconnecting the various light sources to an electrical system of a vehicle;

FIG. 6 is an exploded perspective view of a direct metallization of circuitry onto a plastic automotive lamp housing according to the invention;

FIG. 6A is an enlarged view of an LED being placed against the circuitry of FIG. 6;

FIG. 7 is a further embodiment of direct metallization of circuitry onto a plastic automotive lamp housing according to the invention;

FIG. 8 is a rear perspective view of a lamp housing having a complicated topography prior to application of a circuit directly thereto;

FIG. 9 depicts application of a mask to the lamp housing of FIG. 8 according to the invention;

FIG. 10 depicts metallization of the lamp housing of FIGS. 8-9 with mask

applied; and

FIG. 11 depicts the lamp housing of FIGS. 8-10 with the circuitry applied and mask removed[;

FIG. 12 is a front perspective view of the lamp housing of FIG. 6, having a complicated topography prior to application of a circuit directly thereto;

FIG. 13 depicts application of a mask to the lamp housing of FIG. 12 according to the invention;

FIG. 14 depicts metallization of the lamp housing of FIGS. 12-13 with mask applied; and

FIG. 15 depicts the lamp housing of FIGS. 12-14 with the circuitry applied and mask removed].

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[With reference to the process of Figs. 8-11, Figs. 12-15 presents a] A like process for the embodiment of Fig. 6[, wherein Fig. 12 depicts the lamp housing 110 prior to the application of a spray circuit. In Fig. 13, a mask 440 is applied to housing 110. Mask 440 includes a number of openings 442. In Fig. 14, the housing 110 with applied mask 440 is placed in a vacuum deposition chamber wherein a target 450 is charged, and causing metallic particles 452 to be ejected and deposited on the exposed portions of housing 110 through openings 442. Fig. 15 shows the housing 110 with embedded circuit traces 120] can be utilized on [a] the front face thereof.